

REMARKS

This Amendment is filed in response to the Office Action dated July 19, 2005, which has a shortened statutory period set to expire October 19, 2005.

Applicants Address The 112 Rejection

Applicants greatly appreciate the Examiner's close reading of the claims and his suggestion for correction. Conforming to this suggestion, Applicants have amended Claim 20 to recite "the subset of information". Based on this amendment, Applicants submit that Claim 20 particularly points out and distinctly claims the subject matter of the invention. Therefore, Applicants request reconsideration and withdrawal of the rejection of Claim 20 under 35 U.S.C. 112, second paragraph.

Claims 1-20 Are Patentable Over Lavenir

Claim 1 recites:

A method of generating reports regarding an integrated circuit layout, the method comprising:
 providing a plurality of control points associated with the integrated circuit layout;
 performing a single simulation of the plurality of control points;
 storing information from the single simulation in a database, wherein the information includes deviation information for at least one control point, the deviation information indicating a deviation of a simulated location from a corresponding location on the integrated circuit layout; and
 extracting a subset of information from the database to generate the reports using a first set of checking parameters, wherein extracting is repeatable with a second set of checking parameters without repeating the steps of providing, performing, and storing.

Applicants respectfully submit that Lavenir fails to disclose or suggest the recited method. In general, Lavenir teaches CAM software for printed circuit board (PCB) data (page 13), not for generating a report for an integrated circuit (IC) layout. This distinction becomes increasingly clear upon closer examination of the limitations of the recited method. For example, because Lavenir teaches manipulating PCB data, Lavenir fails to disclose or suggest providing a plurality of control points associated with an IC layout.

Moreover, as taught by Applicants in paragraphs [0002] and [0003]:

In sub-wavelength designs, traditional design rule checking (DRC) tools cannot be relied upon as a final check for silicon manufacturability. Specifically, because features can be distorted during the sub-wavelength manufacturing process due to both local and global proximity effects, DRC tools cannot provide the coverage and assurance needed for silicon sign-off.

To resolve this problem, certain simulation tools have been provided that can verify the layout of a sub-wavelength integrated circuit compared to the printed wafer. Numerical Technologies, Inc. licenses such a tool, the SiVL[®] software package. This simulation tool can read in a user's layout and then simulate lithographic processes and conditions. The resulting simulated wafer image can be compared to the user's layout.

Because Lavenir teaches manipulating data at the board level, not at a sub-wavelength level, simulation is not necessary. Indeed, Lavenir does not once mention the word "simulation" within 516 pages. Therefore, Lavenir also fails to disclose or suggest performing a single simulation of the plurality of control points.

Because Lavenir does not teach anything about a simulation, Lavenir must also logically fail to teach storing information from that simulation in a database. Additionally, the

simulation information includes deviation information that indicates a deviation of a simulated location from a corresponding location on the IC layout. Lavenir teaches neither the simulated location nor the location on an IC layout. Applicants note that determining a clearance and contact between elements (Lavenir, page 385) for a PCB does not require a simulation.

Because Lavenir fails to disclose or suggest multiple elements of the recited method, Applicants request reconsideration and withdrawal of the rejection of Claim 1.

Claims 2-6 depend from Claim 1 and therefore are patentable for at least the reasons presented for Claim 1. Based on those reasons, Applicants request reconsideration and withdrawal of the rejection of Claims 2-6.

Moreover, Claim 2 recites, "wherein providing the plurality of control points includes designating at least one of a type, a rule identification, a tolerance, and a target parameter for each control point". Lavenir fails to disclose or suggest a tolerance for each control point associated with an IC layout. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claim 2.

Moreover, Claim 6 recites, "storing new information in the database based on the at least one new rule and the single simulation". Lavenir fails to disclose or suggest storing the information based in part on a simulation. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claim 6.

Claim 7 recites:

A database for reporting results from simulating an integrated circuit layout, the database comprising:
a plurality of control points associated with the integrated circuit layout;
information regarding the plurality of control points; and

deviation information regarding the plurality of control points, wherein the deviation information indicates deviations of simulated locations from corresponding locations on the integrated circuit layout, the deviation information including a magnitude of each deviation.

Therefore, Claim 7 is patentable for substantially the same reasons presented for Claim 1. That is, Lavenir fails to disclose an integrated circuit layout, much less deviations of simulated locations from corresponding location on that IC layout. Based on those reasons, Applicants request reconsideration and withdrawal of the rejection of Claim 7.

Claims 8-10 depend from Claim 7 and therefore are patentable for at least the reasons presented for Claim 7. Based on those reasons, Applicants request reconsideration and withdrawal of the rejection of Claims 8-10.

Moreover, Claim 8 recites, "further including a spacing for each control point related to an edge of the integrated circuit layout". Because Lavenir fails to teach anything about an IC layout, Lavenir cannot disclose or suggest spacing for each control point related to an edge of that IC layout. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claim 8.

Moreover, Claim 9 recites, "wherein the information includes at least one of a type, a rule identification, a tolerance, and a target parameter for each control point". Because Lavenir fails to teach anything about a control point associated with an IC layout, Lavenir cannot disclose or suggest information about that control point. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claim 9.

Claim 11 recites:

A method of generating simulation reports regarding an integrated circuit layout, the method comprising:

- dissecting feature edges on the integrated circuit layout into segments, each segment including a control point;

- performing a single simulation of the integrated circuit layout using the control points;

- storing simulation information in a database, wherein the simulation information includes deviation information for at least one control point, the deviation information indicating a deviation of a simulated location from a corresponding location on the integrated circuit layout; and

- extracting user-identified information from the database to generate the simulation reports.

Therefore, Claim 11 is also patentable for substantially the same reasons presented for Claim 1. That is, Lavenir fails to disclose or suggest anything about simulation reports regarding an IC layout, much less the recited steps of dissecting, performing, storing, and extracting to generate such simulation reports. Based on those reasons, Applicants request reconsideration and withdrawal of the rejection of Claim 11.

Claims 12-16 depend from Claim 11 and therefore are patentable for at least the reasons presented for Claim 11. Based on those reasons, Applicants request reconsideration and withdrawal of the rejection of Claims 12-16.

Moreover, Claim 12 recites, "further includes designating at least one of a type, a rule identification, a tolerance, and a target parameter for each control point". Because Lavenir fails to teach anything about a control point on a segment of a feature edge of an IC layout, Lavenir cannot disclose or suggest information about that control point. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claim 12.

Moreover, Claim 16 recites, "further including providing at least one new rule associated with the control points and storing new information in the database based on the at least one new rule and the single simulation". Lavenir fails to disclose or suggest storing the information based in part on a simulation. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claim 16.

Claim 17 recites:

An apparatus for generating reports regarding an integrated circuit layout, the apparatus comprising:
means for providing a plurality of control points associated with the integrated circuit layout;
means for performing a single simulation of the plurality of control points;
means for storing information from the single simulation in a database, wherein the information includes deviation information for at least one control point, the deviation information indicating a deviation of a simulated location from a corresponding location on the integrated circuit layout; and
means for extracting a subset of information from the database to generate the reports using a first set of checking parameters, wherein extracting is repeatable with a second set of checking parameters without repeating the steps of providing, performing, and storing.

Therefore, Claim 17 is patentable for substantially the same reasons presented for Claim 1. That is, Lavenir fails to disclose reports regarding an IC layout, much less the means for performing a single simulation of control points associated with that IC layout. Based on those reasons, Applicants request reconsideration and withdrawal of the rejection of Claim 17.

Claims 18-20 depend from Claim 17 and therefore are patentable for at least the reasons presented for Claim 17. Based on those reasons, Applicants request reconsideration and withdrawal of the rejection of Claims 18-20.

Moreover, Claim 18 recites, "means for designating at least one of a type, a rule identification, a tolerance, and a target parameter for each control point". Because Lavenir fails to teach anything about a control point on a segment of a feature edge of an IC layout, Lavenir cannot disclose or suggest information about that control point. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claim 18.

CONCLUSION

Claims 1-20 are pending in the present application.
Allowance of these claims is respectfully requested.

If there are any questions, please telephone the undersigned at 408-451-5907 to expedite prosecution of this case.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as FIRST CLASS MAIL in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on July 28, 2005.

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Date

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